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We claim:

1. An aptamer-based sensor comprising an aptamer, the aptamer comprising a nucleic acid sequence selected from i) SEQ ID No: 9, ii) SEQ II) NO: 24 iii) SEQ ID NO: 25, and iv) sequence sharing at least 95% identity with SEQ ID No: 9, 24 or 25.

2. The aptamer-based sensor according to claim **1**, the aptamer being modified by addition of a reporter label.

3. The aptamer-based sensor according to claim **2**, the reporter label being a fluorescent dye, electroactive tag, a gold nanoparticle (AuNP), or a fluorescent dye and quencher pair.

4. The aptamer-based sensor according to claim **1**, the aptamer comprising a nucleic acid sequence selected from SEQ ID Nos: 3-7.

5. The aptamer-based sensor according to claim **1**, the aptamer having a maximal length of 73 nucleotides.

6. The aptamer-based sensor according to claim **1**, the aptamer having 47 nucleotides.

7. A method for detecting a natural or synthetic cannabinoid in a sample comprising contacting the sample with the aptamer-based sensor of claim **1**, and detecting the natural or synthetic cannabinoid in the sample, the detection of the natural or synthetic cannabinoid comprising measuring a signal generated upon binding of the natural or synthetic cannabinoid to the aptamer-based sensor, the signal being a change in absorbance or fluorescence intensity.

8. The method according to claim **7**, the sample being a biological sample or an environmental sample.

9. The method according to claim **8**, the biological sample being selected from blood, plasma, urine, tears, and saliva.

10. The method according to claim **7**, the natural cannabinoid being THC, metabolite thereof, cannabinol (CBN) or tetrahydrocannabivarin (THCV).

11. The method according to claim **7**, the synthetic cannabinoid being XLR-11 or UR-144.

12. A method for detecting THC and/or a metabolite thereof in a sample comprising contacting the sample with the aptamer-based sensor, the aptamer-based sensor comprising a aptamer that comprises SEQ ID No: 9 or a sequence sharing at least 95% identity with SEQ ID No: 9, and detecting THC and/or a metabolite thereof in the sample.

13. The method according to claim **12**, the detection comprising measuring an absorbance or fluorescence intensity change upon binding of THC and/or a metabolite thereof to the aptamer, or observing a color change by the naked eye.

14. The method according to claim **12**, the aptamer comprising a nucleic acid sequence selected from SEQ ID Nos: 3, 6 and 9.

15. The method according to claim **12**, the aptamer-based sensor further comprising a complementary nucleic acid sequence, the complementary nucleic acid sequence comprising SEQ ID No: 8.

16. A method for detecting XLR-11 and/or UR-144 in a sample comprising contacting the sample with the aptamer-based sensor, the aptamer-based sensor comprising a aptamer that comprises a nucleic acid sequence selected from SEQ ID Nos: 24-25 and a sequences sharing at least 95% identity with SEQ ID No: 24 or 25, and detecting XLR-11 and/or UR-144 in the sample, the detection comprising measuring a signal generated upon binding of XLR-11 and/or UR-144 to the aptamer, the signal being a change in absorbance or fluorescence intensity.

17. The method according to claim **16**, the aptamer comprising a nucleic acid sequence selected from SEQ ID Nos: 4-5 and 7.

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